



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#5 Response
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11/20/02

Applicant(s): Charles W. Mitchell et al.

Title: METHOD AND APPARATUS FOR USING AN ON-BOARD
TEMPERATURE SENSOR ON AN INTEGRATED CIRCUIT

Application No.: 09/660,209

Filed:

September 12, 2000

Examiner: Tung S. Lau

Group Art Unit:

2863

Atty. Docket No.: 1001-0135

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RESPONSE TO NON-FINAL OFFICE ACTION

This paper is responsive to a Non-final Office action dated September 5, 2002, having a shortened statutory period for response set to expire December 5, 2002.

REMARKS

Claims 1-29 are pending in the application.

Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent 5,422,806) in view of Murase et al (U.S. Patent 4,289,272). Applicants respectfully traverse these rejections.

Examiner has combined Murase et al. with Chen et al. in rejecting claims 1-29 however, the detailed office action combined Du et al. (U.S. Patent 6,198,245 B1) with Chen et al. In this response to the office action, Applicants will assume that the Examiner meant Chen et al. in view of Due et al. and NOT Chen et al in view of Murase et al.

As to claim 1, Chen et al. is not combinable with Du et al. Chen et al. discloses an open loop temperature control system (col. 1, lines 61-64) and in contrast, Du et al. discloses a closed loop temperature control system. Chen et al. teaches away from closed loop temperature control

systems. According to Chen et al., closed loop temperature control system is "... more expensive than open loop system. It also increases the complexity of the system." (col. 1, lines 31-33).

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 16 USPQ 2d 1430 (Fed. Cir. 1990). *See also MPEP §2143.01.*

Further, the office action observes that Chen et al. does not disclose a temperature sensor as recited by claim 1 of the application. However, the office action asserts that such sensor, as disclosed by Du et al. can be added to Chen et al. for "improved strategy for a thermo management control device." As stated herein, Chen et al. teaches away from using a temperature sensor. According to Chen et al. "... no temperature measurements are needed or made. Rather, a piecewise estimate of temperature change is employed,..." (emphasis added) (col. 2, lines 43-47). Even if a temperature sensor is added to Chen et al, the temperature sensor will convert the apparatus disclosed by Chen et al. from an open loop to closed loop temperature control system thus, fundamentally changing the nature of the control system of Chen et al.

Further, adding the temperature sensor to Chen et al. renders Chen et al. unsatisfactory for its intended purpose. Chen et al. requires controlling the "counted clock signals representing a temperature value at particular system frequency" (col. 2, lines 5-10). If the actual temperature is measured using the temperature sensors, the 'piecewise approximation having slope and turning points, representing the curve' of Chen et al. becomes useless. "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). *See also*, MPEP 2143.01. Thus, Chen et al. does not teach, suggest or provide motivation to add a temperature sensor. In fact, as stated herein, Chen et al. teaches away from adding a temperature sensor. A temperature sensor cannot be combined with the open loop system disclosed by Chen et al. Accordingly, claim 1 is patentably distinguishable from Chen et al. in view of Du et al. Applicants respectfully submit that the office action fails to establish a *prima facie* case of obviousness and claim 1 and those dependent therefrom are in condition for allowance.

The Examiner has generally rejected the remaining claims including the independent claims 13 and 25 without specific explanation the Applicants are entitled to. For example, MPEP requires establishing a *Prima Facie* case of obviousness. *See MPEP §2142*. According to MPEP, first, there must be some suggestion or motivation to combine reference teaching. Second, there must be a reasonable expectation of success and finally, references must teach or suggest all the claim limitations. As stated herein, first, Chen et al. is not combinable with Du et al. Chen et al. discloses an open loop temperature control system (col. 1, lines 61-64) and in contrast, Du et al. discloses a closed loop temperature control system. Chen et al. teaches away from closed loop temperature control systems. According to Chen et al., closed loop temperature control system is "... more expensive than open loop system. It also increases the complexity of the system." (col. 1, lines 31-33).

Second, adding the temperature sensor to Chen et al. renders Chen et al. unsatisfactory for its intended purpose because the temperature sensor will convert the apparatus disclosed by Chen et al. from an open loop to closed loop temperature control system thus, fundamentally changing the nature of the control system of Chen et al. and the 'piecewise approximation having slope and turning points, representing the curve' of Chen et al. becomes useless.

Finally, as it is also observed in the office action, "Chen et al. doe not disclose the output of the second control signal" (page 3). Thus, the references do not teach or suggest all the claim limitations. Accordingly, Applicants submit the office action has failed to establish a *Prima Facie* case of obviousness as to any of the pending claims.

In view of the above remarks, applicants respectfully request a notice of allowance.



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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to Commissioner for Patents, Washington, D.C. 20231 on the date shown below.

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11-12-02

Date

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